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Original Research Article

A study on knowledge attitude and practices related to hepatitis B infection among nursing students of government nursing college, Jagdalpur, Bastar, Chhattisgarh

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ABSTRACT

Background: Hepatitis-B virus is a potentially critical and familiar occupational hazard for health care workers including nursing students particularly those who are exposed to the populations whose HBsAg prevalence is high. The aim of the study was to assess the Hepatitis-B - knowledge, perception and vaccination status among nursing students.

Methods: A cross-sectional study was conducted by Department of Community Medicine, Government Medical College, Jagdalpur, Chhattisgarh in July 2016, among nursing students of Government Nursing College, Jagdalpur, Chhattisgarh. Using purposive sampling data was collected via a pre-tested self-administered questionnaire. Overall 218 nursing students participated in the study. Statistical analysis was done using Stata version 12.1. Chi square test was used to identify any statistically significant difference among the nursing batches.

Results: The study found that only 18.9% of the 1st year students are vaccinated. Knowledge regarding treatment options was found out to be significantly ($p < 0.05$) low among all nursing batches.

Conclusions: There is lack of knowledge among all students regarding its treatment. Only 18.97% of the 1st year students reported to be vaccinated which puts them at a greater risk of acquiring the infection in future. Therefore, it is recommended that they should get themselves vaccinated before entering clinical rotations. More studies should be conducted on nursing/ medical staff to assess their knowledge on Hepatitis B infection in tribal areas which have high prevalence.

Keywords: Hepatitis B, HBV, Hepatitis B vaccine, Nursing students, Knowledge

INTRODUCTION

Nursing professionals form the fundamental element in the healthcare panel. During the course of acquiring their under graduate degree at some phase of their learning they are taught about the occupational hazards they are prone to, and the precautions to be followed to control and prevent them. Among the numerous risks the nursing professionals are exposed to, Hepatitis-B is one of the most dangerous and fatal one. Hepatitis is an inflammatory disease of the liver, caused by Hepatitis-B

virus (HBV) transmitted parenterally. HBV infection is a global public health problem. Globally, more than 2 billion are infected and about 6% of the world population is carrier for HBV. India has a point prevalence of 2.1% and carrier rate of 1.7%.¹ Based on the prevalence of Hepatitis-B surface antigen (HBsAg), different regions of the world are classified as highly endemic zone where prevalence rate is $\geq 8\%$, which includes South-east Asia, China, Africa, Pacific Islands, Amazon and parts of Middle east, Intermediate endemic zone where prevalence rate is 2-7%, which includes South Asia,

Eastern and Southern Europe, Russia and America (central and south) and low endemic zone where the prevalence rate is <2%, which includes United States, Western Europe and Australia.² Though India falls under the intermediate endemic zone it has around one-fifth of world's population, which accounts for a large proportion of the worldwide Hepatitis-B infection burden. India harbors 10-15% of the entire pool of Hepatitis-B virus carriers of the world.³ A very high prevalence of Hepatitis-B infection has been reported from the tribal population with prevalence rate of 4.4% HBsAg in baiga tribes of Madhya Pradesh.⁴ Joshi et al studied 11 different tribal populations of five districts of Madhya Pradesh and found HBsAg carrier rate of 2.99-21.54% among various tribes which provides ample evidence that the nursing professionals who work in this particular geographical area are at greater risk of exposure to Hepatitis-B virus.⁴ Hence, the current study was designed and conducted among the nursing students at Government Nursing College Jagdalpur Chhattisgarh, to assess their Hepatitis-B - knowledge, perception and vaccination status.

METHODS

A cross-sectional study was conducted by the Department of Community Medicine, Government Medical College Jagdalpur, Chhattisgarh, India in July 2016 using purposive sampling. Data was collected from the Nursing students (first year to final year) at Government Nursing College Jagdalpur, Chhattisgarh, via a pre-tested self-administered questionnaire. For the convenience of participants the informed consent and questionnaire was provided in vernacular language (Hindi). Inclusion and

exclusion criteria: all the nursing students willing to participate were included and nursing students not willing to participate and those not present on the day of data collection were excluded. Ethical approval was taken from the institutional ethics committee, Government Medical College Jagdalpur, Chhattisgarh. Data was analysed using Stata version 12.1. and presented in tabular and graphical formats. Chi square test was used to identify any statistically significant association ($p < 0.05$) among the nursing batches for the explanatory variables.

RESULTS

A total of 218 female nursing students participated in this study, among which there were 58 1st year students, 55 2nd year students, 50 3rd year students and 55 4th year students. The age of the participants ranged from 18 to 38 years with a mean age of 20.8 years. All the students belonged to government nursing College and were English and Hindi speakers.

Table 1 gives the description on the level of knowledge and awareness about Hepatitis B infection among four academic batches. More than 95% of the total study participants had heard about Hepatitis B infection. 2nd (78.18%), 3rd (82%) and 4th (81.82%) year students were aware of its causative agent when compared to 1st year nursing batch ($p < 0.001$). Similarly, knowledge on HBV incubation period was better among 3rd and 4th year nursing students when compared to 1st year and 2nd year ($p < 0.001$). 4th year students had significantly better knowledge regarding vaccination schedule in comparison to other academic batches.

Table 1: Description on the level of knowledge and awareness about hepatitis B.

Variables	1 st year N=58 %	2nd year N=55 %	3rd year N=50 %	4th year N=55 %	Total N=218 %
Ever heard about Hepatitis B Infection? (yes)	96.55	92.73	98	94.55	95.41
Hepatitis B is caused by HBV (yes) **	39.66	78.18	82	81.82	69.72
Incubation Period of Hepatitis B infection is 30-180 days? (yes)**	12.07	14.55	40	47.27	27.98
World hepatitis day is celebrated on 28th July? (yes)	17.24	21.82	18	7.27	16.06
Should hepatitis B vaccination be given at birth? (yes) **	53.45	43.64	60	81.82	59.63
The minimum number of doses for a complete primary HBV vaccination is 3 doses? (yes) **	56.9	94.55	90	94.55	83.49
Is there any diagnostic test available? (Yes) #	68.97	80	78	94.55	80.28
Are healthcare professionals at risk of transmission? (Yes) **	63.79	94.55	98	96.36	87.61
HBV is the most contagious blood-borne pathogen through accidental exposure to blood (Yes)	62.07	72.73	74	83.64	72.94
Contaminated food is not a risk factor for HBV transmission (yes)	20.69	32.73	34	32.73	29.82

N = Number of participants # $p < 0.05$ ** $p < 0.001$.

Table 2: Hepatitis B vaccination awareness and hepatitis B treatment.

Variable	1 st year N=58 %	2 nd year N=55 %	3 rd year N=50 %	4 th year N=55 %	Total N=218 %
Are you vaccinated for Hepatitis B (Yes) **	18.97	98.18	94	100	76.61
Do you think Hepatitis B vaccine must be mandatory for all health care professionals (Yes)	91.38	98.18	98	100	96.79
Is there any permanent cure for Hepatitis B Infection? (Yes) #	51.72	61.82	40	52.73	51.83
What is the mode of treating or curing the infection #					
Symptomatic treatment with drugs, but not cured completely	36.21	32.73	60	49.09	44.04
It can be cured with drugs	41.38	60	28	38.18	42.2
Don't know/ not aware	22.41	7.27	12	12.73	13.76
Can hepatocellular carcinoma (Cancer of liver) be prevented by Hepatitis B Vaccine (Yes) **	31.03	70.91	32	47.27	45.41
Do you think Hepatitis B infection is 50-100 times more infectious than HIV? (yes) #	41.38	52.73	40	45.45	44.95
In your practice, will you manage/treat patient infected with Hepatitis B virus (Yes)	94.83	98.18	98	98.18	97.25
Will you accept a student in your class who is positive for HBV (Yes)	94.83	98.18	100	100	98.17

N = Number of participants # $p < 0.05$ ** $p < 0.001$

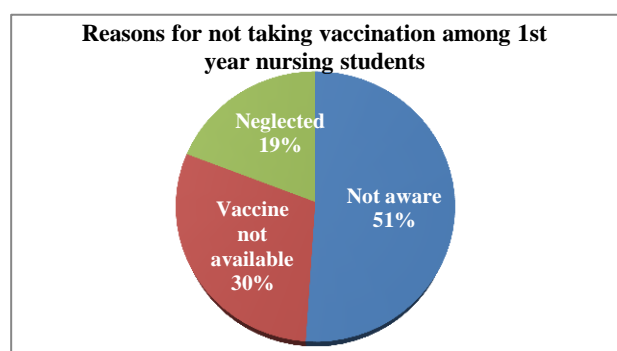


Figure 1: Explains the reasons among 81.03% 1st year students for not being vaccinated.

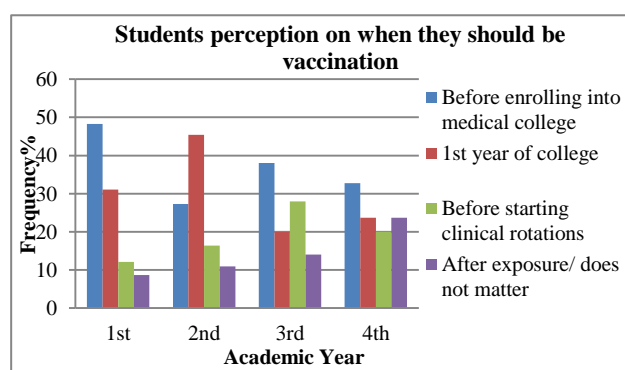


Figure 2: Shows students perception on by when they should be vaccinated.

More than 94% of 2nd year, 3rd year and 4th year participants agreed that healthcare professionals are at a

risk of transmission of Hepatitis B infection. The participants had little awareness when asked if contaminated food was a risk factor for HBV transmission.

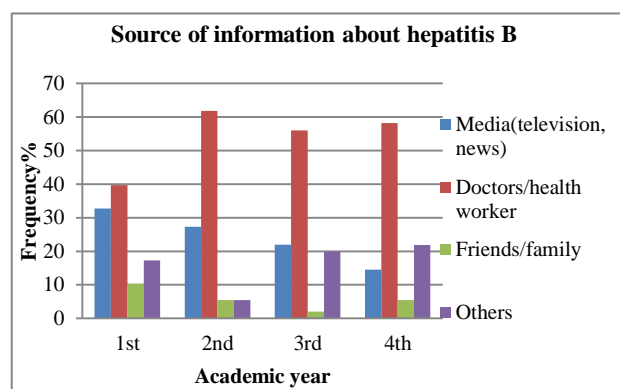


Figure 3: Shows the source of information about hepatitis B infection among academic years.

Table 2 gives the description of awareness regarding vaccination among study participants. Statistically significant difference ($p < 0.05$) was observed between academic levels with their vaccination status, with 4th year to be 100% vaccinated followed by 2nd (98.18%), 3rd year (94%) and 1st year (18.97%). Knowledge regarding these three variables: what is the mode of treating or curing the infection, can hepatocellular carcinoma be prevented by hepatitis B and do you think Hepatitis B is 50-100 times more infectious than HIV was relatively low ($< 50\%$ overall correct answers; $p < 0.05$).

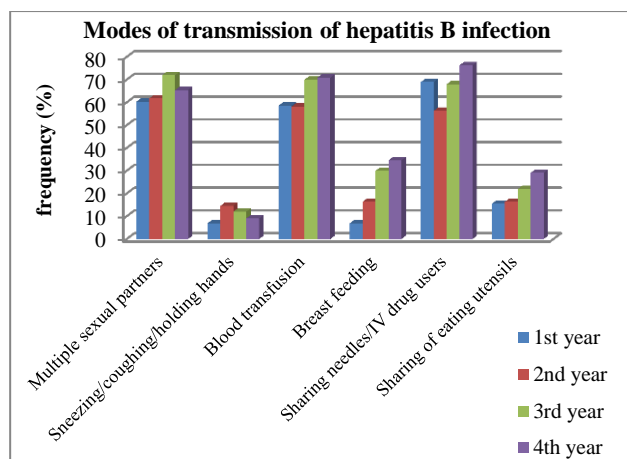


Figure 4: Shows knowledge on the modes of transmission of hepatitis B infection among all study participants.

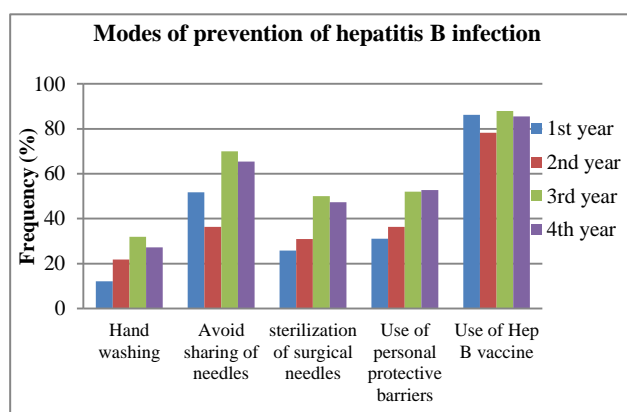


Figure 5: Shows knowledge on the modes of prevention of hepatitis B infection among all study participants.

DISCUSSION

HBV infection can not only be treated but can also be prevented.^{5,6} Nursing students are at a greater risk of acquiring HBV infection due to an early exposure to hospital setting.⁷ Therefore, providing them appropriate understanding and instructions on occupational health hazard is of utmost importance.⁷ The existing study, to our knowledge, is the first of its kind to assess knowledge, perception and vaccination status among all four nursing academic batches of Government Nursing College, Jagdalpur, Chhattisgarh. Jagdalpur is a city in Bastar district which is predominantly a tribal region.⁸

Conferring the findings of this study, all academic batches showed good knowledge by reporting that they had heard about Hepatitis B infection (95.41%). On further questioning about the causative organism and its incubation period, 2nd, 3rd and 4th year students had better knowledge when compared to 1st year students. This finding is nearly consistent with the findings from previously conducted study by Ibrahim and Idris on 1st

year and 5th year medical students.⁹ This difference in knowledge is possible as hepatitis B is well-informed in the 2nd year of their nursing curriculum.

One of the most effective ways to prevent HBV infection is to get vaccinated and to avoid exposure to contaminated blood or body fluids.¹⁰⁻¹² 4th year nursing students expressed superior understanding of vaccination schedule (Table 1) when compared to 1st year students. Similar results were observed by studies conducted by Singh and Jain and Giri and Phalke on medical students.^{13,14}

Statistically Significant difference ($p < 0.001$) was witnessed in their vaccination status. Only 18.97% of 1st year students reported being vaccinated for HBV when compared to 2nd (98.18%), 3rd (94%) and 4th (100%) year students. The findings revealed that as students progressed towards their successive academic years their vaccination status improved, which is similar to Noubiap et al's findings.¹⁵

Upon further probing on the reasons for not taking vaccination, 51% of the non-vaccinated 1st year students reported that they were "not aware" of vaccine availability (Figure 1), which is similar to the findings of Biradar et al's study on first year medical students¹⁶. Statistically significant difference ($p < 0.05$) was observed among all academic batches when asked as to when they should be ideally vaccinated. 48.28% 1st year, 38% 3rd year and 32.73% of the 4th year students felt they should be vaccinated before enrolling into medical college. However, 45.45% of the 2nd year students felt getting vaccinated in the 1st year of college was appropriate.

More than 50% of the study participants were aware about the modes of transmission of hepatitis B infection. It can therefore be said that their knowledge was relatively lower when compared to participants from other studies conducted on medical students by Singh et al (86.7% had correct knowledge), Giri and Phalke (90% had correct knowledge) and Magdey et al (77.7% had correct knowledge).^{13,14,17} However, Khan et al's study showed similar level of knowledge (57.1%) among medical students as that shown by present study.¹⁸

Doctors/health worker was the most common source of information among all academic batches with media being the 2nd choice. However, Biradar et al s showed Media to be more a powerful source than doctors. Doctors/health workers and media can be unquestionably used in creating more awareness regarding other communicable diseases as well.

Majority of the students in our study (>70%) answered the use of Hepatitis B vaccine as the most reliable means to prevent infection. Similar results were seen in Biradar et al study.¹⁶ The results are consistent with their current status of vaccination, excluding the 1st year nursing students.

Knowledge regarding treatment among all academic batches was low in our study (Table 2). Imparting knowledge regarding the disease etiology, causative factors, modes of transmission and its prevention is insufficient if the health worker is not aware of its possible treatment options. Likewise, more awareness needs to be created among the nursing students on the potency of HBV as only 44.95% of them correctly answered about its infectious nature.

It is commendable to obtain a very positive attitude among all nursing students when they were asked if they would treat a patient with HBV and accept HBV positive colleague.

Regardless of the findings in the study, we accept the limitations of this study because all the information obtained was self-reported and may not essentially reflect the accurate knowledge. Moreover, the study participants involved only females and the results cannot be generalized to other private nursing colleges located in Jagdalpur, Chhattisgarh. Due to lack of studies conducted purely on all academic batches of nursing students we have compared our findings to that of studies on medical students. Moreover, the tools for assessing knowledge on Hepatitis B infection varied among the investigators.

CONCLUSION

Most of the nursing students had good knowledge about the disease, modes of transmission and its prevention. However, as anticipated 3rd year and 4th year academic batches had more knowledge over 2nd year followed by 1st year students. There is however, a lack of knowledge among all students regarding its treatment. Only 18.97% of the 1st year students reported to be vaccinated which puts them at a greater risk of acquiring the infection in future. Therefore, it is recommended that they should get themselves vaccinated before entering clinical rotations. More studies should be conducted on nursing/ medical staff to assess their knowledge on Hepatitis B infection in tribal areas which have high prevalence.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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